



**DEPARTMENT OF THE ARMY**

**ST. LOUIS DISTRICT, CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833**

REPLY TO  
ATTENTION OF:

17 October 2008

Planning, Programs and  
Project Management Division  
Environmental Branch

Dear Reviewer:

Enclosed for your review is a copy of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) addressing environmental impacts associated with the East St. Louis Levee Design Deficiency Correction project. No Section 404(b)(1) Evaluation was required.

The purpose of the proposed work is to restore a fully functioning, up-to-date flood protection system with the area administered by the MESD. This EA evaluates the probable impacts of this action and other alternatives that were considered.

This EA and draft FONSI are being circulated for a 30 day public review period, commencing from the date of this letter and are also available on the Corps' St. Louis District website: <http://www.mvs.usace.army.mil> (see District Projects, then Environmental Assessments). If, at the end of the comment period, no comments are received that alter the determination that no significant environmental impact will result, the FONSI will be signed and kept on file at the St. Louis District Office.

All comments on these documents must be submitted in writing, either to our address above, ATTN: CEMVS-PM-E (Francis Walton), or by email (Francis.J.Walton@usace.army.mil). All comments should contain the complete name, address, and telephone number for the public record and to facilitate response to comments, when necessary. All comments must be received prior to close of business 17 November 2008. A distribution list for the EA is attached.

Questions concerning these documents may be addressed to Mr. Francis Walton of our Environmental Branch, telephone 314-331-8487.

Sincerely,

Thomas M. Keevin, PhD.  
Chief, Environmental Branch

Enclosures

ENVIRONMENTAL ASSESSMENT  
WITH  
DRAFT FINDING OF NO SIGNIFICANT IMPACT

EAST ST. LOUIS FLOOD PROTECTION  
DESIGN DEFICIENCY CORRECTION PROJECT  
  
METRO EAST SANITARY DISTRICT  
  
EAST ST. LOUIS, ILLINOIS AND VICINITY

OCTOBER 2008

U.S. Army Corps of Engineers  
1222 Spruce St.  
St. Louis, Missouri 63103

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## **1.0 Purpose of and Need for Action**

1.1 Introduction: The Metro East Sanitary District (MESD) owns and operates a levee system associated with the East Saint Louis Flood Protection System located in Madison and St. Clair counties, Illinois. The levee system is located along the east bank of the Mississippi River between river miles 175 and 195 above the mouth of the Ohio River (Figure EA-1). The overall system protects approximately 85,000 acres of urban area and bottomland and receives rainfall run-off from an additional 50,000 acres of surrounding hills. The rehabilitation project for the East St. Louis Flood Protection system was authorized by the Energy and Water Development Appropriations Act of 1988, Public Law 100-102.

MESD operates and maintains nearly 20 miles of riverfront and flank levee, 3 miles of floodwall, closure structures, and pump stations providing protection against Mississippi River floods. Sixteen pump stations, numerous drainage structures and related facilities, including an extensive network of drainage ditches, canals, and bridges, have been constructed to remove interior rainfall run-off and seepage. The MESD levee system is an urban design that offers flood protection to 52.0 feet on the St. Louis gage. This level roughly corresponds to a 500-year frequency flood.

1.2 Project Description: The primary purpose of this project is to restore a fully functioning, up-to-date flood protection system within the area administered by MESD. Underseepage analyses identified six levee reaches that require underseepage control measures in order to protect against the authorized design flood of 52 feet on the St. Louis gage. Underseepage control measures would be implemented as a design deficiency correction that would include construction of cut-off walls, relief wells and related appurtenances.

The identification of design criteria changes with implications for main line protection reliability are described in this Environmental Assessment (EA). A Limited Reevaluation Report (LRR) will further detail actions deemed appropriate and necessary to meet current design guidelines and reliability factors dictated by this urban design levee system.

**Relief Wells:** A relief well is a well advanced into the subsurface near the landside toe of the levee that is designed to relieve groundwater hydrostatic pressures that develop around levees during flooding. Relief wells allow controlled discharges of seepage water to rise to the ground surface while serving to minimize the vertical seepage gradient at the levee toe and the potential for undermining of earthen materials beneath the levee.

**Cut-Off Walls:** Slurry cutoff walls are relatively impermeable, long, narrow walls that extend through the underlying bedrock in order to effectively limit seepage through the aquifer beneath the levee. In general, slurry cutoff walls are planned to be constructed through the riverside toe of the levee in order to physically limit groundwater seepage at



the landside levee. In cases where levee through-seepage is also a concern, slurry cutoff walls are recommended to be constructed through the levee centerline.

1.3 Need for Project: Extensive monitoring and flood fighting efforts were critical to maintaining levee integrity during the 1993 flood and revealed levee structural inconsistencies and problems. The proposed project will address those issues and restore the integrity of the levee system operated by MESD. The cost benefit ratio of the proposed project is positive and the magnitude of consequences of not taking these actions warrants approval.

1.4 Related Documentation: The St. Louis District's General Design Memorandum (GDM), prepared in December 1990, addressed 19 issues that were believed to compromise the integrity of the MESD levee as a rehabilitation project. Most rehabilitation measures have been completed, however measures that were conducted on existing relief wells did not adequately address seepage problems that manifested themselves during the 1993, 1995 and 2008 floods. As a result of these seepage problems that could not be adequately addressed by rehabilitation measures alone, the U.S. Army Corps of Engineers has decertified the levee as offering sufficient protection against 100-year and 500-year flood events. Five Environmental Assessments with associated Findings of No Significant Impact (FONSI) have been completed by the St. Louis District for projects dealing with this project area. The issues addressed in those EAs are shown in Table EA-1.

Table EA-1

EA	FONSI Signed	Issues Addressed
1	27 September 1989	Gravity drain rehabilitation/replacement
2	27 July 1990	Rehabilitation of the mainline levee components that included the rehabilitation of 300 relief wells, 10 gate-wells, and 20 closure structures.
3	1 August 1991	Rehabilitation of 14 pumping stations, 2 <sup>nd</sup> and 3rd phase rehabilitation of 300 relief wells, rehabilitation of 4 major control structures, rehabilitation of 6 existing channels, and the repairing or replacing of 8 bridges.
4	20 February 1997	Compensatory Mitigation for trees removed during the cleanout of Harding Ditch.
5	May 1988	This EA addressed impacts of repairs to underseepage at riverside depressions south of Monsanto Ave., general project underseepage, inlet channel stability at Cahokia Pump Station, railroad embankment seepage, Sand Plant levee underseepage, Sand Flank levee seepage, plugging an abandoned gatewell at Madison Pump Station, partial demolition of the Old Venice pump station, filling abandoned wastewater pipes, and addition of a water supply system at the South Pump Station. Not all proposed actions were completed.



1.5 Issues and Concerns: The following issues and concerns have been identified:

1.5.1 Clean Water Act 404 Evaluation and 401 State Certification: After discussion of the project plans with the Corps Regulatory office, it was decided that a Section 404 permit would not be required unless final plans indicate staging or access areas would impact adjacent wetlands. No violation of State Water Quality Standards is expected as a result of construction activities associated with this project. Flow from the relief wells will be piped or conveyed via drainage ditches to nearby pump stations.

1.5.2 Hazardous and Toxic Wastes: A Phase I Environmental Site Assessment was completed in 2008 for the areas where groundwater or soil contamination is suspected. If suspected hazardous or toxic substances are found during construction, the U.S. Army Corps of Engineers will notify the Illinois Department of Natural Resources, Office of Water Resources, Illinois Environmental Protection Agency (Illinois EPA) and the U.S. Environmental Protection Agency (U.S.EPA). Hazardous or toxic substances encountered during construction activities will be managed in accordance with all applicable environmental laws and transportation regulations.

1.5.3 Floodplain Management: In the plan formulation for this flood control study, the Water Resources Council's eight-step process for addressing the basic requirements of Executive Order 11988 (Floodplain Management) was followed and is included in Appendix A.

1.6 Project Objective: The primary purpose of this project is to restore a fully functioning, up-to-date flood protection system within the area administered by MESD. This project will be carried out as a design deficiency correction to address seepage problems that could not be addressed by rehabilitation measures on existing relief wells alone. Upon completion of the project, the U.S. Army Corps of Engineers will provide recertification that the levee meets 100-year flood criteria and can withstand a flood measuring 52.0 feet on the Mississippi River gage at St. Louis (approximate 500-year flood event).

## **2.0 ALTERNATIVES**

2.1 Introduction: This section describes the formulation of alternatives, compares the alternatives in terms of their environmental impacts and achievement of objectives, and provides recommendations to address seepage problems.

The general approach to underseepage analysis was to first consider relief wells as the solution in each reach, and then to consider slurry trench cutoff walls in areas where relief wells did not satisfy design criteria. Other typical underseepage solutions include landside seepage berms and riverside clay blankets. Seepage berms are generally economical but require real estate acquisitions and property relocations landside of the levee. The option of seepage berms was eliminated from consideration since areas near the levee are largely developed and acquiring the land and borrow materials is

economically impractical. Riverside clay blankets were not considered due to the large amount of real estate purchases that would be necessary riverside of the levee and the lack of local clay borrow materials. Thus, relief well and slurry cutoff trench solutions are recommended in this report.

There are levee reaches where the relief well spacing necessary to control underseepage pressures is impractically small. Practical minimum well spacing is considered to be 50 feet. In cases where relief wells do not provide a factor of safety of 1.6 or greater, slurry cutoff walls are recommended. These relatively impermeable, long, narrow walls extend into bedrock in order to effectively limit seepage through the aquifer beneath the levee. In general, slurry cutoff walls are planned to be constructed through the riverside toe of the levee in order to limit groundwater gradients at the landside levee toe and uplift forces beneath the levee. In cases where through-seepage is also a concern, slurry cutoff walls are recommended to be constructed through the levee centerline.

Due to the deep proposed slurry trench depths and concerns about trench stability, cement-bentonite walls are generally recommended for the MESD levee. Cutoff walls would be built using panel construction methods. Advantages of this method include good trench stability and minimal needs for property or rights-of-way acquisitions. The main disadvantage is that most of the excavated soils cannot be reused and must be disposed of elsewhere. In areas where no environmental contamination exists, excavated materials will be placed along the margins of the levee on MESD property. In areas where environmental contamination exists, precautions will be taken during construction activities. Site workers will wear appropriate personal protective gear during construction activities, excavation equipment will be decontaminated as appropriate and contaminated soils will be handled in accordance with environmental regulations. Contaminated soils will be sampled to determine whether special handling procedures will be necessary. In addition, soils will be sampled to determine waste characteristic (e.g. whether the soils are considered special, hazardous, toxic or mixed waste) for the purposes of storage, treatment, disposal, landfilling, etc. The cutoff wall will be capped off at the ground surface once construction is complete and will be tied into levee.

Existing relief wells constructed in the 1950s were composed of wooden-stave riser pipes and screen sections. A rehabilitation program conducted on these wells pursuant to the GDM was not successful in achieving an acceptable level of seepage protection. This was due in part to: (1) mineral encrustation of the well screens and bio-fouling of the gravel pack around these wells, (2) original design underestimations of expected seepage volume flows during flood conditions, and (3) exceedance of the design life of the wells. Because the existing relief wells are now considered to be beyond their design life, the effect of the existing relief wells on underseepage was ignored for this analysis. Thus, the designs presented in this report assume that the existing wells do not provide any underseepage pressure relief.

2.2 Alternatives: Relative to location on the levee, the six levee reaches requiring rehabilitation are as follows:

1. Stations 254+00 to 262+25
2. Stations 773+03 to 1048+00
3. Stations 1057+30 to 1103+00
4. Stations 1114+00 to 1349+00
5. Stations 1393+00 to 1463+00
6. Stations 1475+00 to 1505+00

### **2.2.1 Reach from Stations 254+00 to 262+25 (Plate 1)**

This reach extends 825 feet along the northern flank levee from State Highway 3 to the northern end of the Chain of Rocks Canal levee. At this portion of the levee, there is a wooded area adjacent to the 25-foot landside berm. There are six existing wells in this area along the adjacent Chain of Rocks Canal levee that were installed because of previous seepage issues.

Alternative 1 –No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief Wells. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe. The total number of relief wells is estimated to be 6 at a spacing of 165 feet. A 10 foot wide area parallel to the toe of the landside berm would be required for the drill rig to access and install the proposed relief wells.

Alternative 3 - Seepage berms. Using seepage berms instead of relief wells would require a berm width of 343 feet. It appears that a berm of that size is not practical in this reach due to the presence of the wooded area and lack of real estate interests.

Recommendation: Alternative 2 is the recommended plan.

### **2.2.2 Reach from Stations 773+03 to 1048+00 (Plates 2 and 3)**

This reach extends 5.2 miles from the downstream end of the Chain of Rocks Canal to about 500 feet downstream of the Eads Bridge. The Sand Plant Levee (stations 965+00 to 995+00) falls within this reach. In this section, there is the Granite City Seepage #1 Pump Station (780+00), the Granite City Lift Station (798+16), Granite City Seepage #2 Pump Station (815+00), Granite City Seepage #3 Pump Station (844+58), Madison Pump Station (861+61), Venice Pump Station (892+27), old Ameren UE Power Plant outdoor pump station (904+50), and North Pump Station (1009+00).

Sand Plant Levee Reach - Problem. During the 1993 flood, underseepage was excessive between levee stations 965+00 and 995+00, exacerbated, in part, by several large depressions that exist on the riverside of the levee. Numerous sandboils and excessive seepage caused great concern during the 1993 flood. A crack approximately 100 feet

long developed on the downstream end of the reach during the flood between levee stations 995+00 and 996+00 and there are deep holes adjacent to the levee.

Alternative 1 – No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief wells and cutoff walls. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe. Relief wells were designed using a minimum spacing of 50 feet. Where relief wells do not sufficiently relieve seepage pressures at a spacing of 50 feet or less, cutoff walls into bedrock are planned. In the Sand Plant levee area, there is a history of excessive underseepage and sand boils; thus, a cutoff wall is planned for this area. For this reach, 166 wells and 4 cutoff walls are necessary. Well spacings range from 77 feet to 300 feet with an average of about 170 feet. Average estimated well depth is 50 feet. Total length of cutoff wall is 7,300 linear feet with an average estimated depth of 105 feet. The four cutoff wall locations are as follows:

1. 773+03 to 776+00 (297 feet)
2. 783+00 to 793+00 (1,000 feet)
3. 845+00 to 854+00 (900 feet)
4. 961+00 to 1012+00 (5,100 feet) – includes the Sand Plant levee (965+00 to 995+00)

Alternative 3 – Relief wells and seepage berms. Seepage berm designs were studied for areas within stations 773+03 to 776+00, 783+00 to 793+00, 845+00 to 854+00, and 961+00 to 1012+00. Using relief wells with seepage berms instead of cutoff walls would require an average berm width of 300 feet. Berms were determined impractical in these reaches due to the presence of landside features and the need for significant real estate acquisitions.

Recommendation: Alternative 2, relief wells and cutoff walls, is the recommended plan.

### **2.2.3 Reach from Stations 1057+30 to 1103+00 (Plates 3 & 4)**

This reach extends 0.87 miles from closure structure number 15 (Terminal Railroad) south of the Casino Queen to closure structure number 26 (permanent closure) south of the MacArthur Bridge. In this section, there are no pump stations or gravity drainage structures.

Alternative 1 – No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief wells with a cutoff wall. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe.

Relief wells were designed using a minimum spacing of 50 feet. Where relief wells do not sufficiently regulate seepage pressures at a spacing of 50 feet or less, cutoff walls to bedrock are designed. For this reach, 13 relief wells and 1 cutoff wall are necessary. Well spacings range from 133 feet to 296 feet with an average spacing of about 210 feet. Average estimated well depth is 80 feet. The cutoff wall would be needed from station 1078+00 to 1095+00, beneath the Poplar Street Bridge. Total length of cutoff wall is 1,700 linear feet with an average estimated depth of 125 feet.

Alternative 3 – Relief wells and seepage berms. Seepage berm designs were studied for areas within stations 1078+00 to 1095+00. Using seepage berms instead of a cutoff wall would require a berm width of 479 feet. A seepage berm in this reach did not appear practical due to railroad lines near the landside toe of the levee, significant landside features, and need for real estate acquisitions.

Recommendation: Alternative 2, relief wells and a cutoff wall, is the recommended plan.

#### **2.2.4 Reach from Stations 1114+00 to 1349+00 (Plates 4 & 5)**

This reach extends 4.45 miles from 350 feet south of the East St. Louis Pump Station to near closure structure number 25 at Water Street. At approximate station 1312+00, the riverfront levee ends and the flank levee begins along Prairie du Pont Creek. In this section, there is the old Monsanto Pump Station (1154+98, abandoned), Philips Reach Pump Station (1225+65), and the Cahokia Pump Station (1315+16). This reach also includes two key sections known as the Sauget Area and Phillips Reach. Problems with these two areas are outlined below.

Sauget Area – Problems. The Sauget area extends from about station 1140+00 to 1240+00. In this area, the levee bisects the Sauget Area 2 Superfund Site. Widespread soil and groundwater contamination exists in this area as a result of this Superfund site as well as potential groundwater contamination from two Resource Conservation and Recovery (RCRA) facilities – Solutia Inc. W.G. Krummrich Plant, Clayton Chemical Co. – and the Sauget Area 1 Superfund Site.

Landside surface depressions appeared during the 1993 flood along Mobile Avenue (near the old Monsanto Pump Station) between stations 1140+00 to 1154+00. Large quantities of water from undetermined sources, possibly from these depressions, were reported to be entering into the American Bottoms Wastewater Treatment Plant (WWTP). The Mobile Avenue pavement collapsed into two culverts due to the foundation eroding away. The owners of the pipes were contacted to ascertain the condition of the abandoned pipes and active lines, but little is known as to the conditions of the abandoned culverts and pipes.

South of Monsanto Avenue, sandboils and excessive seepage occurred in areas landside between levee station 1150+00 and 1240+00. Between 1150+00 and 1158+00, sandboils, heavy seepage, and shallow surface depressions appeared, and two abandoned pipes collapsed under Mobile Avenue. The asphalt parking areas for a hazardous waste incineration facility between levee stations 1175+00 and 1193+00 experienced pumping

of the underlying soils. Several deep depressions exist just beyond the riverside levee toe between levee stations 1187+00 and 1240+00. The depressions generally are 10 to 20 feet deep and average 15 feet below the prevailing ground surface. Some of these depressions have been filled in or partially filled since the early 1990s. The fine grain top strata soils are virtually nonexistent in the depressions. A hazardous waste incinerator and wastewater treatment plant are located immediately landside of the levee and must be considered in the plan formulation. Permanent rights of way have been acquired under the levee footprint and additional real estates would have to be acquired for any construction outside the levee footprint.

There is an existing riverside contaminant barrier wall about 300 feet from the levee centerline located approximately between stations 1155+00 to 1175+00. The function of this barrier, which is composed of a soil-bentonite material and has been advanced into the bedrock, is to minimize groundwater contamination originating from a riverside chemical waste landfill (Sauget Area 2 Superfund Site; Site R) from entering the Mississippi River. The wall is approximately 3500 feet long and surrounds Site R on three corners. Three wells pump the contaminated groundwater from within Site R to the American Bottoms WWTP. The MESD levee is located upgradient from the containment barrier wall. For this analysis, the advantageous effect of the existing wall acting as a riverside block was taken into consideration. In general, the wall will somewhat block underseepage through the aquifer and will increase factor of safety.

Seepage problems along the levee that borders a petroleum storage facility south of Sauget also exists. Petroleum contamination has been noted in and around existing relief wells in this area.

Phillips Reach – Problems. A former railroad embankment along Phillips Reach extends from 1245+00 to 1305+00. The original construction of the East St. Louis Levee System between levee stations 1245+00 and 1305+00 consisted of a landside enlargement of this railroad embankment. Most railroad embankments in the East St. Louis area consist of random fill with lenses of sand, cinders, ballast rock, silts, and clays. Although a clay levee section was constructed on the landside slope of the railroad embankment, no clay blanket was constructed on the riverside slope of the embankment. Through-levee seepage was reported in this reach by MESD during the 1993 flood. Without a riverside clay blanket, seepage pressures within the levee core may rise to unacceptable levels. If the railroad ballast and rubble fill is more pervious than the levee itself, uncontrolled through-seepage and levee instability is possible in this reach.

Alternative 1 – No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief wells and cutoff walls. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe. Relief wells were designed using a minimum spacing of 50 feet. Where relief wells do not sufficiently regulate seepage pressures at a spacing of 50 feet or less, cutoff walls to



bedrock are designed. For this reach, 93 relief wells and four cutoff walls are necessary. Well spacings range from 57 feet to 200 feet with an average of about 115 feet. Average estimated well depth is 60 feet. Total length of cutoff wall is 13,900 linear feet. Between stations 1155+00 and 1175+00, where the existing Site R contaminant barrier wall is located, 19 relief wells with an estimated total flow of 18 cubic feet per second are planned. For walls 1, 2, and 4 below, the average estimated depth is 115 feet. For wall 3, the average estimated depth is 135 feet since this wall will be constructed through the centerline of the levee in order to limit seepage through the railroad embankment. The four cutoff wall locations are as follows:

1. 1123+00 to 1137+00 (1,400 feet)
2. 1175+00 to 1190+00 (1,500 feet)
3. 1210+00 to 1309+00 (9,900 feet) - includes Phillips Reach railroad embankment
4. 1328+00 to 1339+00 (1,100 feet)

Alternative 3 – Relief wells and seepage berms. Using relief wells with seepage berms instead of cutoff walls appears to be impractical. Berm widths ranging from about 400 to 900 feet wide and averaging about 600 feet wide would be needed. Low-lying areas holding seepage water would be located landside of levee and berm. This solution may require significant fills depending on depth of low area. Also, fills in this area would not be allowed due to environmental concerns. This solution does not prevent through-seepage between stations 1245+00 and 1305+00 and thus measures would be needed in addition to wells and berms along the Phillips Reach railroad embankment section.

Recommendation: Alternative 2, relief wells and cutoff walls, is the recommended plan. With this alternative, the measures described below are also recommended in order to address the relief well discharge and landside surface depressions that occurred along Mobile Avenue.

The relief wells between stations 1137+00 and 1175+00 will be located close to developed areas. Under a 500-year equivalent flood scenario, the estimated flow from the 36 wells planned for this section is 40 cubic feet per second (cfs). A collection system is recommended in order to prevent flooding of developed areas. It is feasible to install this collection system that will route relief well flows north to the East St. Louis Pump Station. The station has sufficient capacity to handle these additional flows. Because of groundwater contaminant issues, flows would be pumped directly to the pump station and not allowed to be in contact with the ground surface or surface water bodies.

Relief wells between stations 1190+00 and 1210+00 also will be located close to existing developed areas. Under a 500-year equivalent flood scenario, the estimated flow from the 22 wells planned for this section is 12 cfs. A collection system is recommended in order to prevent flooding at the American Bottoms WWTP. It is feasible to install this collection system that will route relief well flows south to the Phillips Reach Pump Station. The station has sufficient capacity to handle these additional flows. Because of

groundwater contaminant issues, flows would be pumped directly to the pump station and not allowed to be in contact with the ground surface or surface water bodies.

To address the landside surface depressions along Mobile Avenue between stations 1140+00 to 1154+00, it is recommended to grout fill the abandoned pipes. The abandoned culverts and pipes would be completely filled with grout so levee foundation materials cannot be carried away within the pipes.

### **2.2.5 Reach from Stations 1393+00 to 1463+00 (Plate 6)**

This reach extends 1.6 miles along Prairie du Pont Creek from about 1,400 feet east of Route 3 to I-255. In this section there is the Blue Waters Ditch Pump Station (1433+02).

Alternative 1 – No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief Wells. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe. Relief wells are planned for stations 1393+00 to 1463+00. The total number of relief wells is estimated to be 36. Well spacings range from 122 feet to 233 feet with an average of about 185 feet. Average estimated well depth is 65 feet.

Alternative 3 – Seepage berms. Seepage berm would be located between stations 1393+00 to 1463+00. Using seepage berms instead of relief wells would require berm widths ranging from about 140 to 330 feet. Seepage berms in this reach do not appear practical due to roadways, low areas, and the pump station that exists in the berm footprint.

Recommendation: Alternative 2 is the recommended plan.

### **2.2.6 Reach from Stations 1475+00 to 1505+00 (Plate 6)**

This reach extends 0.6 miles along Prairie du Pont Creek from Triple Lakes Road to the South Pump Station. Just beyond this section there is the South Pump Station (1505+05) and the Canal No. 1 Pump Station (1511+30).

Alternative 1 – No Action. This alternative is not acceptable since the safety criteria for underseepage is not being met for the design flood.

Alternative 2 – Relief Wells. This alternative design includes the use of relief wells consisting of 8-inch well screen and risers that penetrate at least 50 percent of the aquifer to achieve a factor of safety of 1.6 against upward gradient at the levee toe. Relief wells are planned for stations 1475+00 to 1505+00. The total number of relief wells is estimated to be 26. Well spacings range from 67 feet to 250 feet with an average of about 160 feet. Average estimated well depth is 55 feet.

Alternative 3 - Seepage berms. (Stations 1475+00 to 1505+00). Using seepage berms instead of relief wells would require berm widths ranging from about 60 to 450 feet. Seepage berms in this reach do not appear practical due to roadways and other landside features in the berm footprint.

Recommendation: Alternative 2 is the recommended plan.

### 2.3 Summary of Recommended Alternatives

Table EA-2 – Summary of Recommended Alternatives

<b>Location</b>	<b>Descriptive</b>	<b>Recommended Plan</b>	<b>Length (miles)</b>
<b>254+00 to 262+25</b>	State Highway 3 to the northern end of the Chain of Rocks Canal levee	6 relief wells	0.156
<b>773+03 to 1048+00</b>	Downstream end of the Chain of Rocks Canal to about 500 feet downstream of the Eads Bridge	166 Relief wells and 1 Cut off wall	5.2
<b>1057+30 to 1103+00</b>	Closure structure number 15 (Terminal Railroad) south of the Casino Queen to closure structure number 26	13 Relief wells and 1 Cut off wall	0.87
<b>1114+00 to 1349+00</b>	South of the East St. Louis Pump Station to near closure structure number 25 at Water Street	93 relief Wells, 4 Cut off walls, 2 Collection Systems and Grout Filling of Abandoned Pipes.	4.45
<b>1393+00 to 1463+00</b>	Prairie du Pont Creek from about 1,400 feet east of Route 3 to I-255	36 Relief Wells	1.6
<b>1475+00 to 1505+00</b>	Prairie du Pont Creek from Triple Lakes Road to the South Pump Station	26 Relief Wells	0.6
		<b>344 Total Relief Wells; 22,897 ft. of Cutoff Wall</b>	

## 3.0 AFFECTED ENVIRONMENT

This section describes the existing condition of resources in the project area.

3.1 Air Quality: The Illinois EPA monitors air quality at numerous stations across the state for a variety of pollutants, including particulate matter, sulfur dioxide, ozone, carbon monoxide, lead, and nitrogen dioxide. The level of concentration of these five pollutants on a day to day basis is combined into a single number or index, called the pollutants standards index, which when reported to the public is describe in easily understood terms (e.g. good, moderate, unhealthy, hazardous). In 2006 (latest data available), the agency's Metro East Sector had the poorest overall air quality of eleven metropolitan areas with populations greater than 200,000 in the state (Illinois EPA, 2006). Air quality in this sector was "good" about 52.3% of the time, "moderate" about 46.8% of the time,

and "unhealthful" about 0.8 percent of the year. No ozone advisories were issued for the Metro-East area in 2006.

3.2 Water Quality: Recent data describing the quality of surface waters within the project area such as Prairie Du Pont Creek and interior drainage ditches are not available. However, because the surrounding watershed supports substantial residential and commercial industrial development and the remaining area is intensively developed for agriculture, water quality would be expected to reflect this type of land use.

Groundwater: A Phase I Environmental Assessment was performed in accordance with the Scope of Work and ASTM Practice E 1527 and E 1528. The findings and conclusions for the Phase I in the Sauget area show that the MESD levee bisects the Sauget Area 2 Superfund Site. This site represents an aggregation of smaller hazardous and/or toxic substance sites designated as the following:

- Site O – Former sludge disposal lagoon associated with Sauget WWTP
- Site P – Former industrial landfill suspected of having received hazardous wastes
- Site Q – Former municipal/industrial landfill that received hazardous/toxic wastes
- Site R – Industrial landfill that received hazardous/toxic wastes
- Site S – Still-bottom sludge disposal area from solvent reclaiming facility

In addition, there are two RCRA facilities, a petroleum storage facility and another Superfund Site (Sauget Area 1 Superfund Site) that have caused or may have potentially caused groundwater contamination around relief wells. A detailed collection of data and pollution characterizations, especially of the southern portion of the assessment area (i.e., Sauget Area 1 and 2), can be found at the Cahokia, Illinois public library. This area has been the focus of several investigations by governmental agencies including the U.S.EPA and Illinois EPA. These agencies have produced voluminous reports defining the extent of groundwater and soil contamination. In practicality, all well drilling or groundbreaking activities associated with these areas have a high probability of contacting hazardous or toxic substances. All personnel associated with work activities in this area should be mindful of the various contaminant sites within the assessment boundary and take necessary precautions.

Areas around large portions of the MESD levee have been highly industrialized. Facilities in the vicinity include manufacturing plants, power plants, warehousing, oil refineries, chemical production plants and other facilities that generate, store or dispose of environmentally-sensitive substances.

3.3 Hydrologic Conditions: The East St. Louis Flood Protection System is designed to provide 500-year protection to the Metro East area. Interior drainage is handled by a series of natural drainage ways, ditches, and pump stations. As part of the levee system, relief wells are located landside of the levee to help relieve hydrostatic pressure by allowing ground water to flow to the surface.

3.4 Noise: Many of the areas near the MESD levee are located directly adjacent to industrial or commercial facilities while others are in a rural setting where the only source of noise may be the agriculture equipment during planting and harvesting. Resident developments are located near the Venice Pump Station and along the southern flank of the levee between stations 1327+00 and the South Pump Station.

3.5 Prime Farmland: The actual number of acres of prime farmland protected by the project was not determined. Prime farmland along the levee is located mainly south of the north flank of the levee and in scattered areas as well.

3.6 Biological Resources: All of the project areas are generally located within the footprint of levee. Biological resources impacted would include the grass covered toe areas of the levee, the service road located on the levee crown, and less than an acre of wooded area scattered along the levee where relief wells would be located.

3.6.1 Threatened and Endangered Species: The MESD Flood Protection Project lies within the range of six Federally-listed species. Those species include the following:

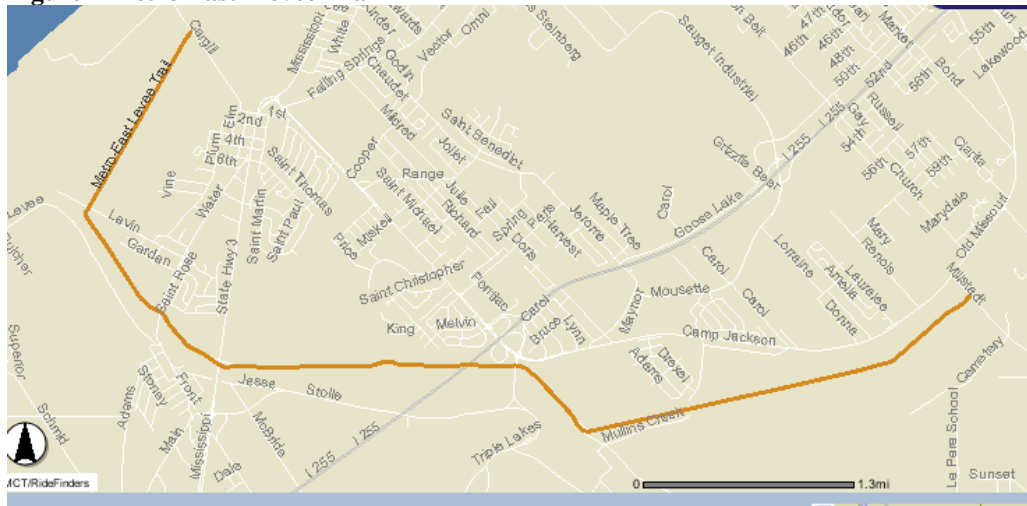
Table EA-3 – List of Federally Endangered and Threatened Species

Species Name	Federal Status
Least tern ( <i>Sterna antillarum</i> )	E
Gray bat ( <i>Myotis grisescens</i> )	E
Indiana bat ( <i>Myotis sodalis</i> )	E
Pallid sturgeon ( <i>Scaphirhynchus albus</i> )	E
Decurrent false aster ( <i>Boltonia decurrens</i> ),	T
Illinois cave amphipod ( <i>Gammarus acherondytes</i> )	E

3.7 Recreation: The Metro-East Levee Trail (see Figure 2) is a 7.5 mile unpaved walking and biking trail located atop the levee. Approximately 3.5 miles of the trail is located in project areas. The trail offers great views of wetlands along the Mississippi River.

3.8 Aesthetics: Because of its semi-rural location, the overall aesthetic quality of the project area is probably favorable to those people living in residential areas within or adjacent to the project area. The undeveloped natural habitats are particularly attractive to these residents as well as the visiting public, but the industrial areas would not be expected to be so. Aesthetic aquatic resources include the natural channel of the Mississippi River. Along the levee areas, aesthetically unpleasant aspects would include littering and illegal dumping of trash, all terrain vehicle use, and vandalism.

**Figure 2 Metro East Levee Trail**



**3.9 Historic Properties:** The term historic properties includes archeological (prehistoric and historic) and architectural resources. The study area coincides with the portion of the Mississippi River floodplain known as the American Bottoms, which is unique and has a very rich cultural heritage. This area has one of highest archeological site densities in the United States.

Historic properties previously identified within this area range in age from 50 to more than 12,000 years old, spanning occupations by prehistoric Native Americans, historic Native Americans and historic Euro-Americans (see Table EA-4).

**TABLE EA-4 Cultural Occupations Within the Project Area**

American	1778	Present
British	1765	1778
French	1673	1765
Historic Indian	1500	ca. 1800
Mississippian	AD. 900	1500
Woodland	1000 B.C.	AD. 900
Archaic	8000 B.C.	1000 B.C.
Paleo-Indian	(?)12000 B.C.	8000 B.C.

The most prominent archaeological site within the study area is the Cahokia Mounds State Historical Site, which is the largest prehistoric site north of Mexico. It is listed on the National Register of Historic Places, is a National Historic Landmark, and also is one of only 20 World Heritage Sites in the United States designated by the United Nations Education, Science and Cultural Organization (UNESCO). During historic times, the town of Cahokia was founded in 1699 by the French and is the oldest extant European settlement on the Mississippi River.

At present, a total of 14 structures and sites within the study area have been listed on the National Register of Historic Places:

- Cahokia Mounds State Park
- Horseshoe Lake Mound Village -Granite City
- Eads Bridge - East St. Louis
- Pennsylvania Avenue Historic District-East St. Louis
- Majestic Theater - East St. Louis
- Old Holy Family Church -Cahokia
- New Church of the Holy Family - Cahokia
- Old Cahokia Courthouse -Cahokia
- Jarrot House (Mansion) -Cahokia
- Pierre Martin-Boismenu House - East Carondelet
- Curtiss-Wright Hangars 1 and 2 – Cahokia
- Chain of Rocks Bridge – Madison
- Spivey Building – East St. Louis
- Emmert – Zippel House – Granite City

In addition to these, many other potentially significant sites have yet to be investigated within the area.

3.10 Wetlands: No jurisdictional wetlands would be impacted by the project.

3.11 Socioeconomics: The MESD Flood Protection Project currently protects 85,000 acres of residential, industrial, and agricultural lands. Approximately 18,000 people live and 200,000 are employed in the region protected by the levee system. The estimated property value of the area is estimated at 1.4 billion dollars.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

A description of environmental effects on project area resources is discussed in the following sections:

4.1 Air Quality: The recommended plans will have short term effects on air quality. These effects would be restricted to exhaust and dust from construction activities. Air quality impacts would cease once construction was completed. It can be envisioned that construction activities that include ground disturbances in areas where significant soil and/or groundwater contamination exist can volatilize certain contaminants, potentially causing impacts to air quality. Depending on site conditions, on-site construction workers may need to wear respiratory protection. Activities associated with stockpiling or handling contaminated soils could also cause impacts to air quality. Care must be taken to minimize soil contamination impacts on air quality, such as covering stockpiled materials or wetting down excavated materials.

As far as post-construction completion impacts are concerned, the primary concern would be volatilization of contaminants from relief wells that discharge groundwater seepage.

Considering the types of contaminants that are known to impact certain reaches of the MESD levee, location of contaminant source areas, and the fact that seepage from these areas would be piped directly into pump stations, it is unlikely that significant impacts to air quality in these scenarios would be realized. As soil/groundwater cleanups of hazardous/toxic substance sites that impact relief wells are completed, post-construction impacts to air quality will be further diminished.

**4.2 Water Quality:** The recommended plans are not expected to cause short term impacts to surface water or groundwater quality. Proper stormwater pollution prevention practices will be employed in construction areas where ground disturbances are conducted. If it becomes necessary to pump out groundwater or precipitation that fills cutoff wall excavations or relief well holes during construction, proper environmental protocols will be followed (e.g. contaminated water will be tested and treated/properly disposed of if conditions warrant).

The primary post-construction concern with water quality is the discharge of groundwater seepage to surface water via relief wells. In most situations, these waters would discharge into a ditch that would flow into a nearby pump station. In other situations (particularly in the Sauget area), groundwater discharges from relief wells in areas that have significant contamination would be piped directly into pump stations. As a result, contaminants that may be present in certain relief well flows would not be allowed to discharge to the ground surface.

The potential for contaminants to enter the Mississippi River via pump stations was evaluated. It was determined that the overall effect on the water quality of the Mississippi would only be impacted to a minor degree considering that relief wells would only be discharging during flood events that accompany excessively high flow rates in the Mississippi. It must also be noted that as soil/groundwater cleanups of hazardous/toxic substance sites that impact relief wells are completed, contaminant levels in relief well discharges will diminish, thereby improving the quality of water pumped via pump stations during flood events.

**4.3 Hydrologic Conditions:** Recommended plans for construction activities noted in this EA would not cause significant hydrologic short term impacts.

As for long-term impacts, recommended plans for construction activities noted in this EA would correct the hydrologic problems of flood waters entering the entire 85,000-acre protected area. Groundwater flow conditions would be affected in areas where cutoff wall construction is recommended. These effects include the potential for groundwater mounding on the landside of the cutoff wall and the creation of localized groundwater gradients that may trend perpendicular to the walls during low/normal river flows. Once these flows reach the ends of the cutoff wall, groundwater would then flow back into the river in a normal fashion. It is probable that this phenomenon could also affect groundwater contaminant distribution/attenuation patterns in areas of the levee that are impacted by groundwater contamination.



4.4 Noise: Short-term noise impacts will be generated by construction machinery and will be intermittent in nature. The U.S. Army Corps of Engineers will confine construction operations to daylight hours when practicable to minimize noise impacts to adjacent residential areas.

Overall, recommended plans for items addressed in this EA are not expected to significantly create noise effects for the short or long-term

4.5 Prime Farmland: No prime farmland is expected to be impacted by the recommended plans.

4.6 Biological Resources: The grass areas of the toe and levee crown will be temporarily disturbed due to construction activities. The areas will be reseeded and impacts to the terrestrial habitat and animals is expected to be temporary and minor. Work in areas that contain trees and shrubs will be conducted to avoid impacts to larger trees. No suitable Indiana bat or bald eagle roost sites are located in the proposed work areas.

4.6.1 Threatened and Endangered Species: In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers requested the U.S. Fish and Wildlife Service (USFWS) to provide a listing of Federally threatened or endangered species, currently classified or proposed for classification, that may occur in the vicinity of the MESD levee. In a letter dated 18 September 2008, the USFWS provided a list of 6 species that are known to occur in Madison and St. Clair counties (USFWS 2008). In an email dated 19 September 2008, the Illinois Department of Natural Resources provided a list of state-listed species that were associated with the project areas (IDNR 2008) and that list is attached as Appendix B. The following biological assessment was prepared to address the presence of the following federally listed species.

Least tern: Nesting colonies of the least tern have been recorded from Jackson and Alexander Counties, Illinois (Herkert, 1992). Nesting areas are sparsely vegetated sand and gravel bars within a wide, unobstructed river channel. Nesting locations usually are at the higher elevations and away from the water's edge. The proposed project is unlikely to affect this species.

Gray bat: Gray bats are presently known from only several counties in west-central and extreme southern Illinois; however, the species' historical distribution includes Madison county (Herkert, 1992). Gray bats roost in caves year around. Winter caves are deep and vertical, and provide a large volume below the lowest entrance to act as cold air traps. A much wider variety of cave types are used during spring and fall transient periods. In summer, maternity colonies prefer caves that act as warm air traps or that provide restricted rooms or dome ceilings that are capable of trapping the combined body heat from thousands of clustered individuals. Summer caves, especially those used by maternity colonies, are nearly always located within a kilometer of rivers or reservoirs over which they feed. Except for brief periods of inclement weather in early spring and possibly late fall, adult gray bats feed almost exclusively over water along river or reservoir edges. As there are no known winter

or other seasonal caves in the vicinity of the proposed project area, it is unlikely that this species will be impacted.

**Indiana bat:** Indiana bats also winter in caves or mines, but none of these features are known in the vicinity of Madison County (Herkert, 1992). Females use trees in the summer months as nursery roosts, and forage for insects in the tree canopy. Trees preferred for maternity roosting in Illinois have included dead individuals with shaggy or loose bark, and diameters at breast height (dbh) greater than 9 inches. Species have included slippery elm, American elm, northern red oak, white oak, post oak, shagbark hickory, bitternut hickory, cottonwood, silver maple, green ash, white ash, and sycamore (Hofmann, 1994). Live shagbark hickory trees with loose bark or cavities are also used. Males have been known to roost in single oak, sassafras, and sugar maple (Hofmann, 1994). Some dead cottonwood, silver maple and sycamore greater than 10 inches dbh are present near the railroad embankment and the riverside depressions. Any tree felling associated with these projects will be restricted to the colder months when maternity roosting is known not to occur (September 1 through March 31). With this restriction, the proposed project is unlikely to affect this bat.

**Pallid sturgeon:** This fish is found in the Mississippi River downstream of its confluence with the Missouri River. The entire stretch of river below the mouth of the Missouri River is considered potential habitat. Little is known of its habitat preferences. Pallid sturgeon are most frequently caught over a sand bottom, which is the predominant bottom substrate within the species' range on the Missouri and Mississippi Rivers. Pallid sturgeons have been found in water 1.2 to 7.6 meters deep with velocities of 0.33 to 90 centimeters per second (USFWS 1993). These data probably better reflect where data have been collected rather than actual habitat preferences. Recent tag returns have also shown that the species may be using a range of habitats in off-channel areas, including tributaries, of the Mississippi River. Since there are no expected impacts to the Mississippi River, the pallid sturgeon is unlikely to be affected.

**Decurrent false aster:** The decurrent false aster is presently known from scattered localities on the floodplains of the Illinois River, and Mississippi River from its confluence with the Missouri River south to Madison County, Illinois. Its natural habitat is the shores of lakes and the banks of streams and it appears to require abundant light. Populations presently grow on stream banks and lake shores, but are more common in disturbed lowland areas where they appear to be dependent on human activity for survival. Habitat for this species does not occur in the impacted areas because they are for the most part located on elevated ground; therefore, the soil is too dry to support germination.

**Illinois cave amphipod – Endangered.** Cave amphipods (*Gammarus acherondytes*) inhabit the bottoms of pools and riffles in large cave streams, where they creep among cobbles and under stones. Amphipods feed on small particles of organic debris and on decomposers such as bacteria and fungi. Because they ingest large quantities of this material, they are exposed to contamination from a variety of pollutants. This species is only found in karst caves within 10 miles of Waterloo, Illinois (Monroe County), and would not be affected by the proposed project.

It is the St. Louis District's opinion that the proposed project will not adversely impact any of the six federally listed species that might occur in the project area. The USFWS will be given an opportunity to review this EA and comment on this Biological Assessment.

4.7 Recreation: The areas of impact may cause a short term impact to walkers and joggers during construction due to the presence of machinery. This impact will be eliminated once the construction is complete.

4.8 Aesthetics: The aesthetics of the project area will be temporarily impacted by construction activities. Areas where the ground surface is disturbed will be reseeded and returned to pre-project conditions.

4.9 Historic Properties: None of the sites listed on the National Register will be negatively affected by the proposed project. The prevention of a major flood event by strengthening the existing levee protection will benefit those structures susceptible to inundation if the levee system were to fail. All projects are to be done on previously disturbed areas so impacts to unknown sites is considered unlikely. If the recommended plans change, the need to do additional surveys may arise.

4.10 Wetlands: No wetlands are expected to be impacted.

4.11 Socioeconomics: The purpose of the projects addressed in this EA is to ensure the integrity of the MESD levee. In the event that the levee was to fail, as many as 180,000 would be homeless and 200,000 people would be jobless.

4.12 Relationship of the Proposed Project to Land-Use Plans: The proposed project, which is to restore a fully functional flood protection project for the East St. Louis area is consistent with the original purpose of the project and the need to protect highly developed commercial urban areas.

4.13 Adverse Effects Which Cannot Be Avoided: Unavoidable temporary impacts include the noise and exhaust generated by heavy equipment during construction. In addition, minor disruptions may occur in areas where piping carrying groundwater seepage from relief wells is to be laid down during construction. All work will be restricted to areas owned by MESD where possible.

4.14 Short-Term Use versus Long-Term Productivity: The recommended plan does not represent a short-term use of the environment, but a long-term or permanent solution to many problems with the original project. These levee problems could lead to a catastrophic levee failure and the damage to lives, property, and livelihoods of many people. The areas of impact, for the most part, have been utilized by the original project and the rehabilitation of the project will not affect any previously undisturbed areas.

4.15 Irreversible or Irretrievable Resource Commitments: Funds will be committed for labor and construction materials.

4.16 Cumulative Impacts: Cumulative impacts are those “impacts which result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions” (40 CFR 1508.7). Cumulative impacts to the project were discussed in prior EAs listed in Table EA-1. Impacts associated with construction those projects have only resulted in minor cumulative impacts in agriculture, floodplains, and wetland systems. Due to the limited impacts associated with the project addressed in this EA it would be reasonable to assume the overall assessment of cumulative impacts would remain unchanged.

## 5.0 RELATIONSHIP OF RECOMMEND ALTERNATIVES TO ENVIRONMENTAL REQUIREMENTS

TABLE EA-5. Relationship of Plan to Environmental Requirements	
Guidance	Degree of Compliance
<b>Federal Statutes</b>	
Archaeological and Historic Preservation Act, as Amended, 16 U.S.C. 469, et seq.	PC <sup>1</sup>
Clean Air Act, as Amended, 42 U.S.C. 7609	FC
Clean Water Act, as Amended 33 U.S.C. 466 et seq.	PC <sup>2</sup>
Endangered Species Act, as Amended, 16 U.S.C. 1531. et seq.	FC
Farmland Protection Policy Act, 7 U.S.C. 4201, et seq.	FC
Federal Water Project Recreation Act, as Amended. 16 U.S.C. 4601, et seq.	FC
Fish and Wildlife Coordination Act, as Amended, 16 U.S.C. 4601, et seq.	PC <sup>2</sup>
Land and Water Conservation Fund Act, as Amended, 16 U.S.C. 4601, et seq.	FC
National Environmental Policy Act, as Amended, 42 U.S.C. 4321, et seq.	FC
National Historic Preservation Act, as Amended, 16 US. C. 470a, et seq.	PC <sup>1</sup>
<b>Executive Orders</b>	
Flood Plain Management, E.O. 11988 as amended by E.O. 12148	FC
Protection of Wetlands, E.O 11990 as amended by E.O. 12608	FC
Protection and Enhancement of the Cultural Environment, E.O. 11593	PC <sup>1</sup>
Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, CEQ Memorandum, August 11, 1980.	FC

FC = Full Compliance, PC = Partial Compliance.

1. Full compliance will be attained after all required archaeological investigations, reports and coordination have been completed.

2. Full compliance will be attained upon completion of any permitting requirements or coordination with other agencies.

## **6.0 LITERATURE CITED**

- Herkert, J.R., editor. 1992. Endangered and threatened species of Illinois: status and distribution, volume 2 - animals. Illinois Endangered Species Protection Board, Springfield, Illinois, 142 pp.
- Hofmann, J. 1994. Letter dated June 30, 1994, from J. Hofmann, biologist, Illinois State Natural History Survey, Champaign, to J. Collins, U.S. Fish and Wildlife Service, Marion, Illinois.
- Illinois Department of Natural Resources. 2008. Official correspondence, Dated 19 September 2008.
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- United States Army Corps of Engineers. 1998. Environmental Assessment with Finding of No Significant Impact, East St. Louis Flood Protection Rehabilitation Project: East St. Louis, Illinois and Vicinity. Signed 3 June 1998.
- United States Army Corps of Engineers. 2008. HTRW Initial Hazard Assessment (Phase I Environmental Site Assessment, MESD East St. Louis Flood Protection Rehabilitation Project)
- U.S. Fish and Wildlife Service (USFWS). 1993. Pallid sturgeon recovery plan. U.S. Fish and Wildlife Service, Bismarck, North Dakota, 55 pp.
- U.S. Fish and Wildlife Service (USFWS). 2008. Official correspondence dated 18 September 2008.

## **7.0 ENVIRONMENTAL ASSESSMENT PREPARERS**

The St. Louis District staff members responsible for preparing this document are as follows:

Mr. Francis Walton, Biologist

Experience: 10 years Environmental Branch, SLD

Role: EA Coordinator Environmental Impact Analysis Endangered Species

Mr. Paul Takacs, Environmental Engineer

Experience: 21 Years Environmental Engineering, 7 mos. Project Management Branch

Role: Project Manager

Lara Anderson, Physical Anthropologist

Experience: 13 years Curation and Archives Analysis Branch, St. Louis District

Role: Historic Properties Compliance

Mrs. Emily Navin, Geotechnical Engineer  
Experience: 2 years Geotechnical Branch (Foundations Section), SLD  
Role: Project Descriptions

Mr. Chuck Frerker, Environmental Specialist  
Experience: 20 years Regulatory Branch  
Role: Section 404 Compliance

## **8.0 COORDINATION, PUBLIC VIEWS, AND RESPONSES**

The Corps has coordinated with the U.S. Fish and Wildlife Service and the Illinois Department of Natural Resources. The Draft Environmental Assessment and Unsigned Finding of No Significant Impact was sent to the following elected officials, agencies, organizations and individuals for review and comment. All responses are filed with this document.

### **Elected Officials:**

- Honorable Richard Durbin
- Honorable Barack Obama
- Honorable Jerry Costello
- Honorable James Claybourne
- Honorable William Haine
- Honorable Jay Hoffman
- Honorable Dan Beiser
- Honorable Thomas Holbrook
- Honorable Wyvetter H. Younge

### **Federal Agencies:**

- Department of Agriculture, Natural Resource Conservation Service
- Fish and Wildlife Service
- Environmental Protection Agency, Region V
- Federal Emergency Protection Agency

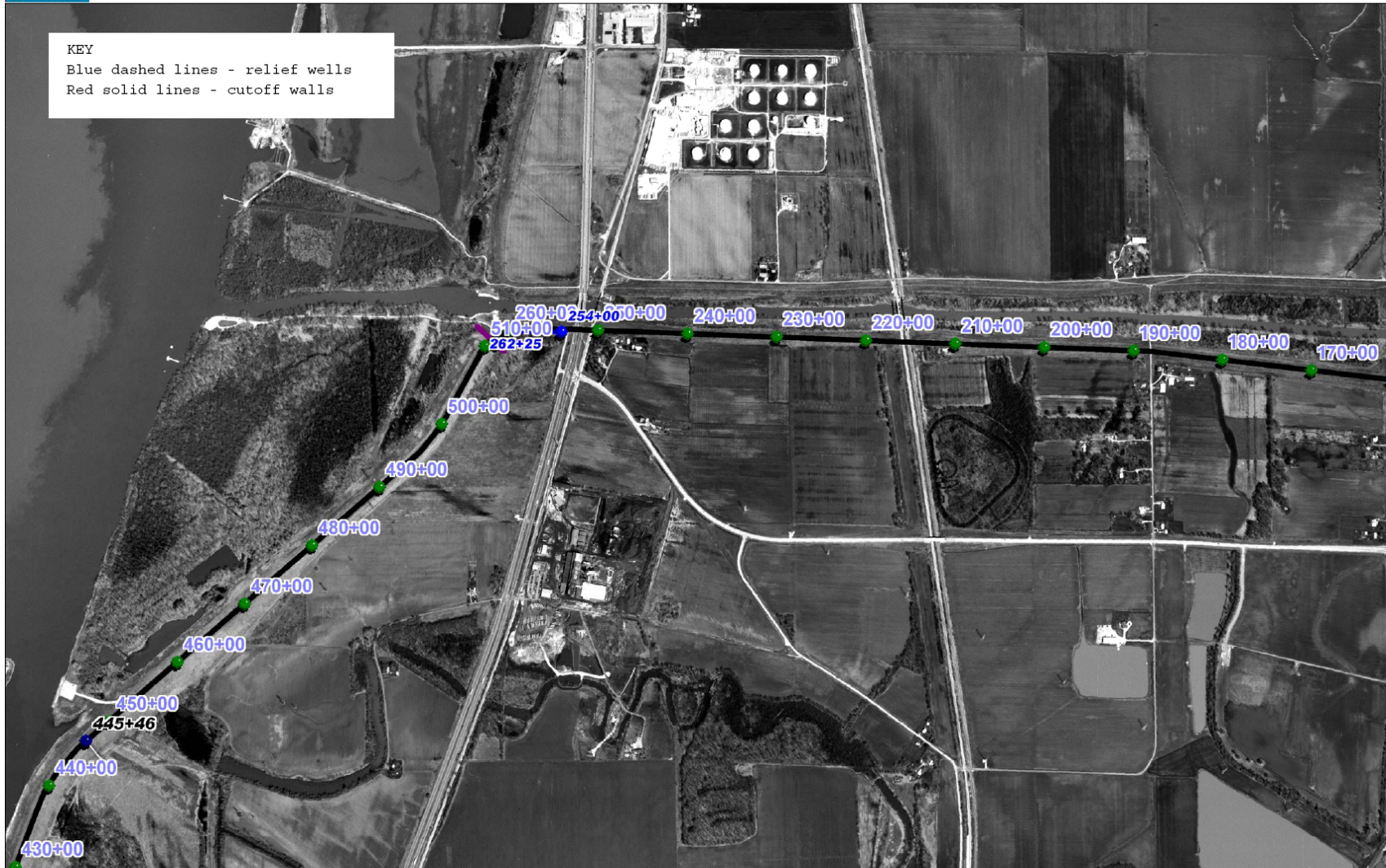
### **Illinois State Agencies:**

- Department of Natural Resources
- Historic Preservation Agency
- Environmental Protection Agency

### **Industry, Organizations, and Individuals:**

- Sierra Club
- The Nature Conservancy
- Metro East Sanitary District
- East-West Gateway Council of Governments

To assure compliance with the National Environmental Policy Act, Endangered Species Act and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phase of the proposed project.



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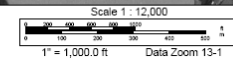
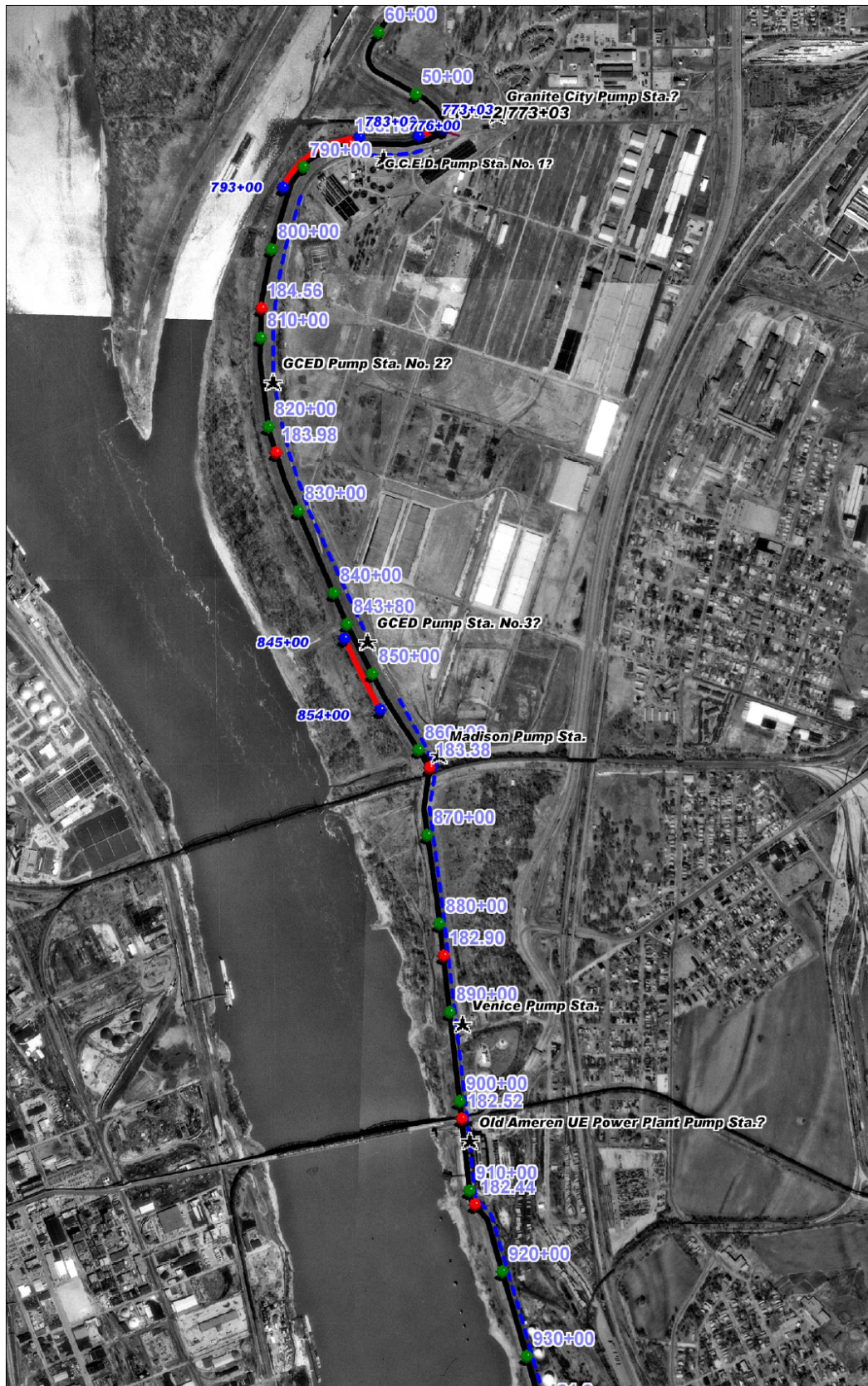


Plate 1

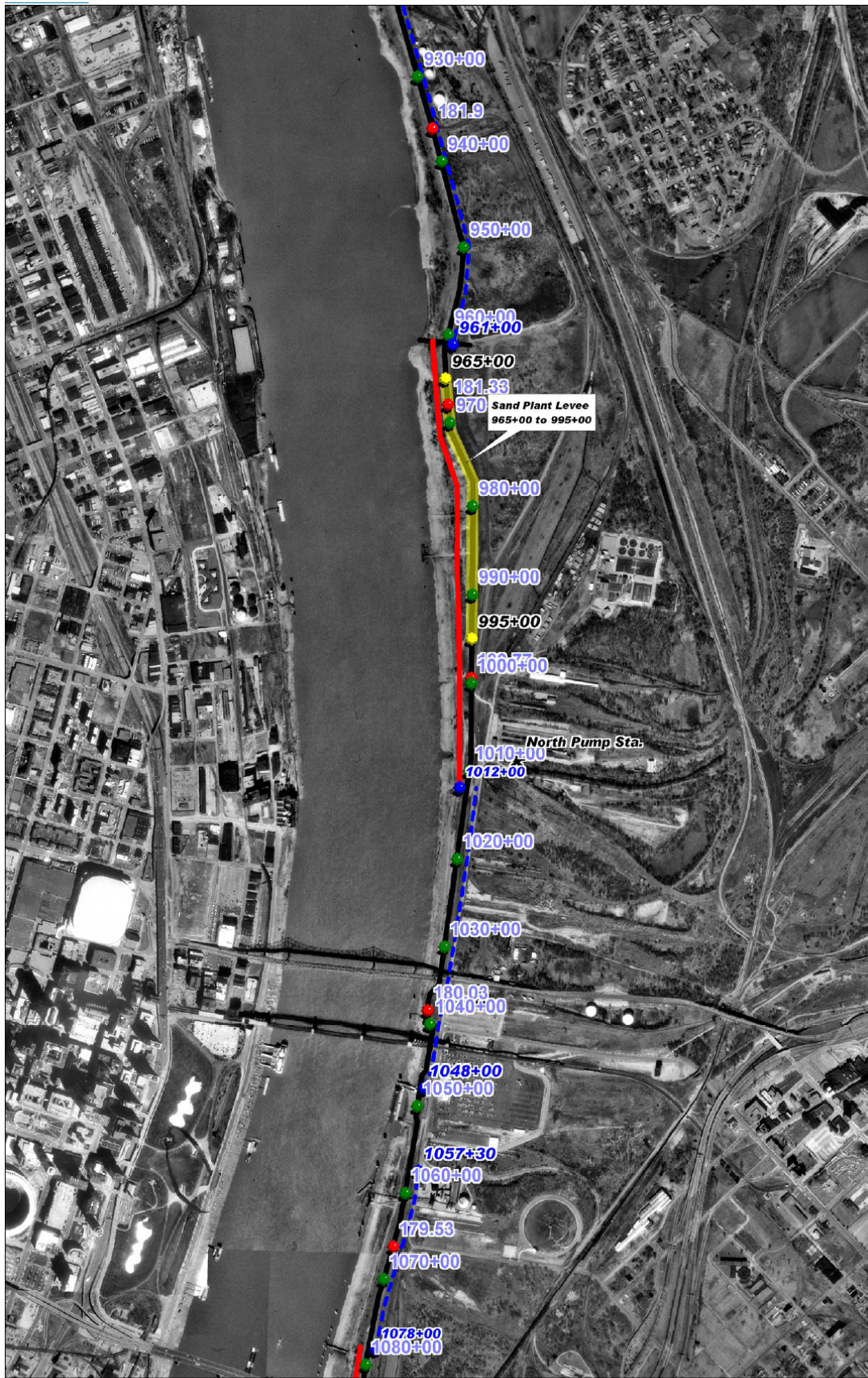




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Plate 2



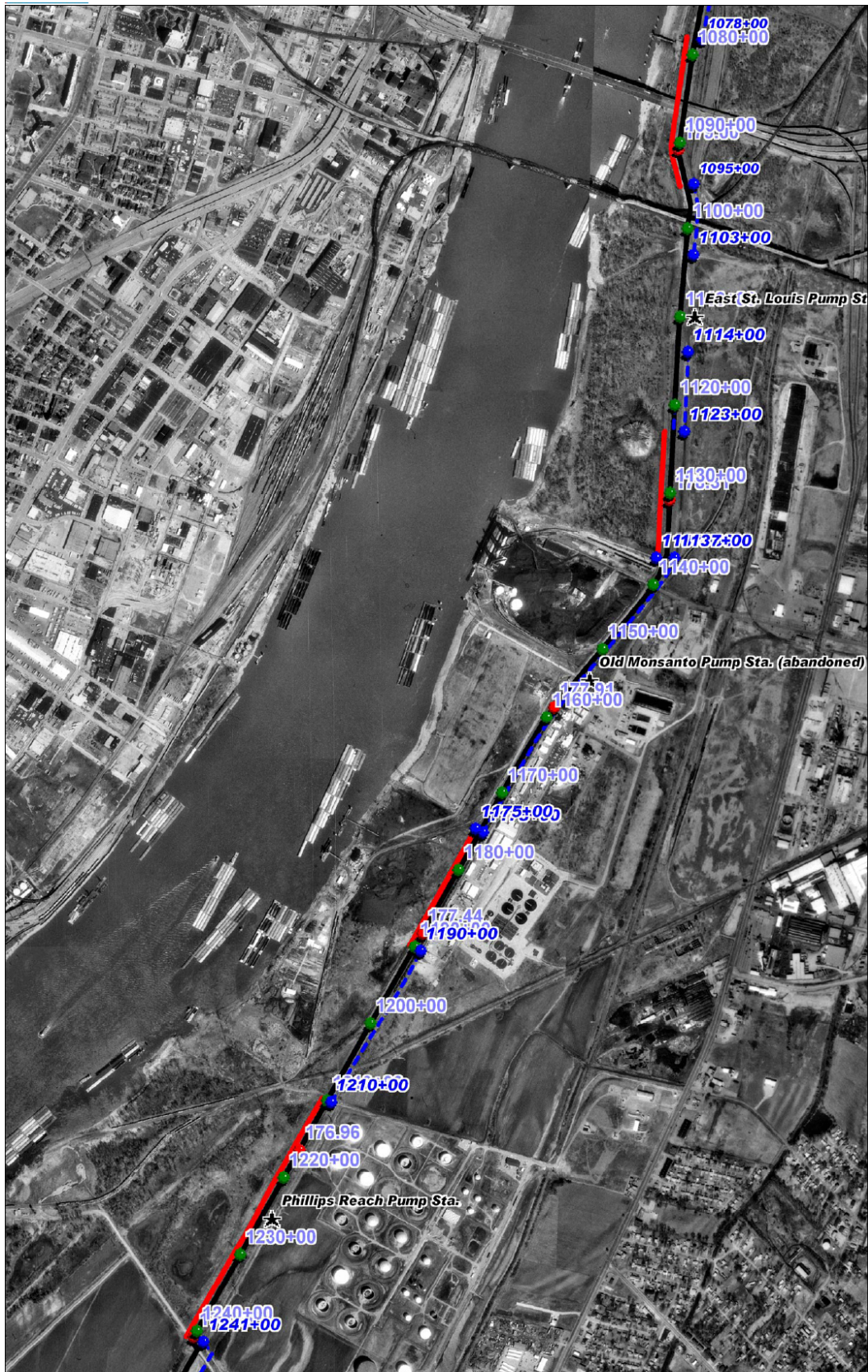


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Plate 3



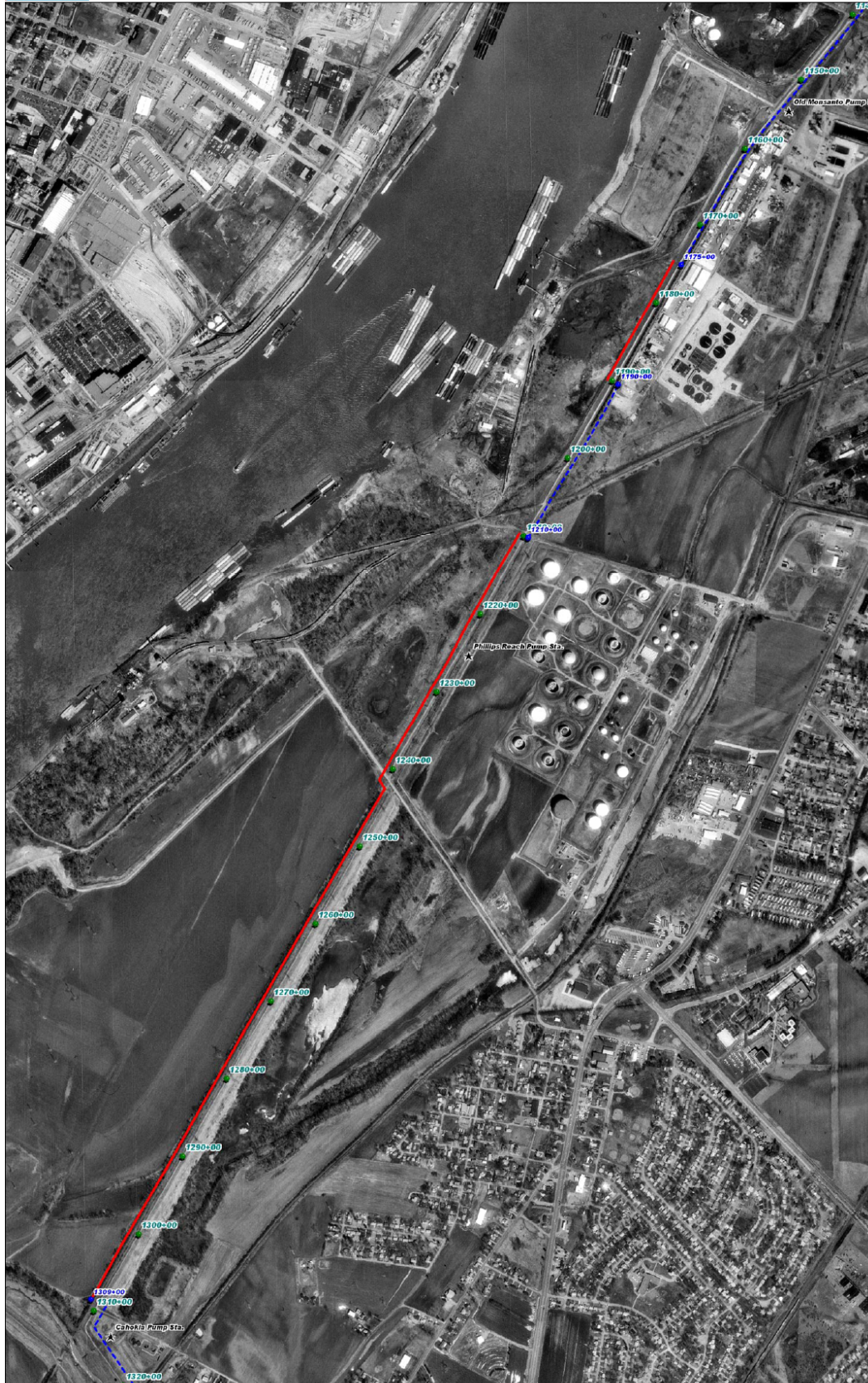


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Plate 4





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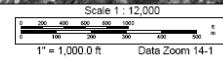


Plate 5



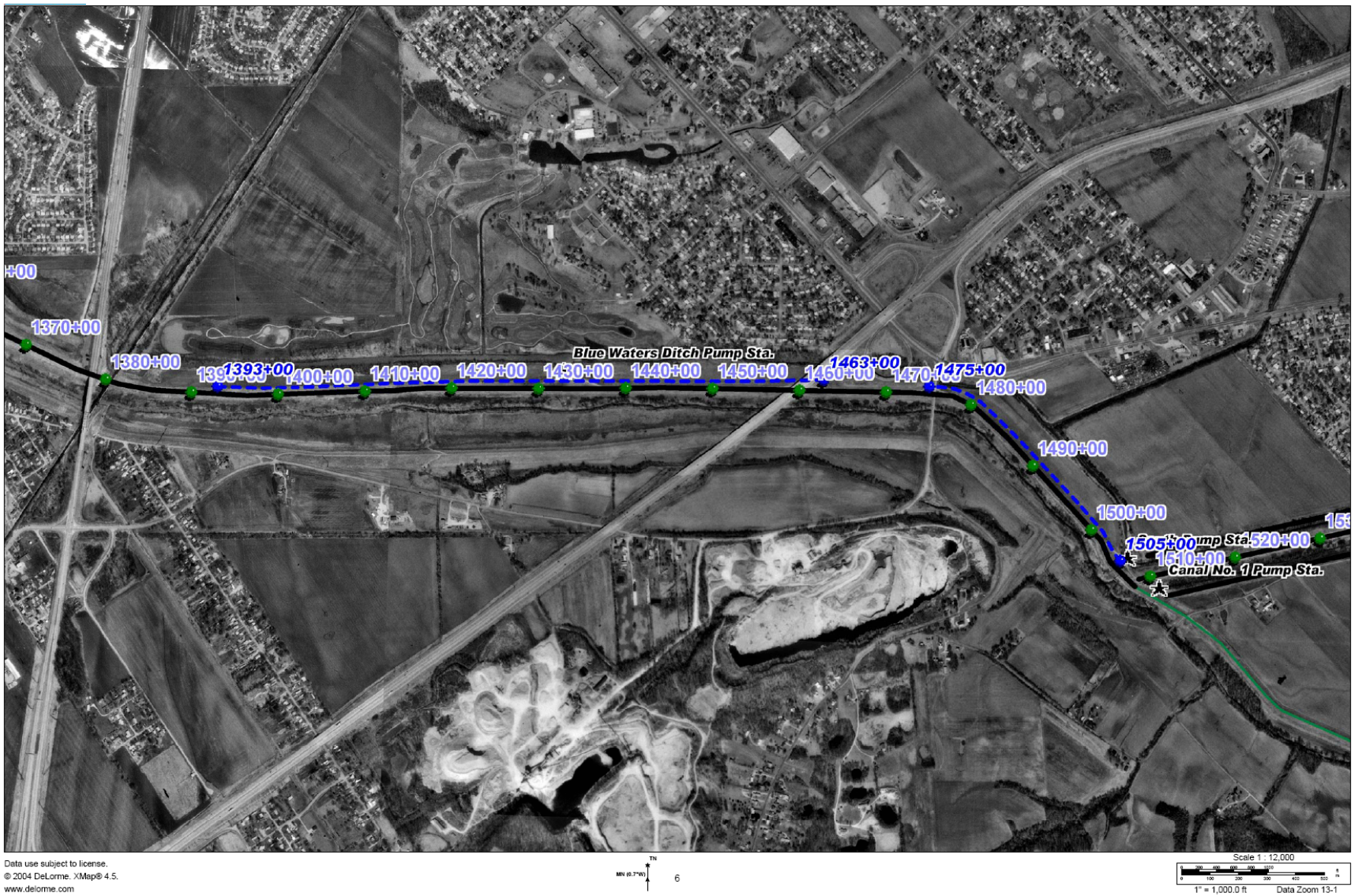


Plate 6

DRAFT FINDING OF NO SIGNIFICANT IMPACT  
EAST ST. LOUIS FLOOD PROTECTION DEFICIENCY CORRECTION PROJECT  
METRO EAST SANITARY DISTRICT  
EAST ST. LOUIS, ILLINOIS AND VICINITY

1. I have reviewed and evaluated the documents concerning the proposed East St. Louis Levee Design Deficiency Correction Project. The primary purpose of this project is to restore a fully functioning, up-to-date flood protection system within the area of the East St. Louis Flood Protection System levee that is administered by the Metro East Sanitary District (MESD).
2. Alternatives were considered for each item addressed in the Levee Reevaluation Report including the "No Action" alternative.
3. The alternatives have been studied for physical, biological and socioeconomic effects. Major findings of this investigation included the following:
  - a. The "No Action" alternative was evaluated. This alternative is unacceptable because the flood control system would further degrade, increasing the risk of total East St. Louis Flood Protection System failure.
  - b. The recommended plans were selected because they provided an engineering solution to the problem consistent with the preservation of the environment.
  - c. The recommended plans would not have any effect upon significant historic properties.
  - d. No Federal or state endangered or threatened species will be adversely impacted.
  - e. The proposed action will have only temporary limited adverse impacts on air quality, aesthetics, and biological resources.
4. Based on my analysis and evaluation of the alternative courses of action presented in this Environmental Assessment, I have determined that the East St. Louis Levee Design Deficiency Correction Project will not have significant effects on the quality of the human environment. Therefore, no Environmental Impact Statement will be prepared prior to proceeding with this action.

Date\_\_\_\_\_

\_\_\_\_\_  
Thomas E. O'Hara, Jr.  
Colonel, U.S. Army  
District Engineer

## Appendix A

- Step 1. Determine if a proposed action is in the base floodplain. **Corps Action:** Yes, the authorized plan is in the base floodplain of the Mississippi River.
- Step 2. Provide for public review. **Corps Action:** The Draft Environmental Assessment (EA) will be submitted for a 30-day agency review. The comments will be addressed in the Final EA.
- Step 3. Identify and evaluate practicable alternatives to locating in the base floodplain. **Corps Action:** Due to the nature of this Project, there were no alternatives located outside of the base floodplain. The projects involve correcting insufficiencies in a flood control system that is already in place. Therefore, all alternatives were located within the base floodplain.
- Step 4. Identify the impacts of the proposed action. **Corps Action:** Impacts have been identified in this document, and in the "Environmental Effects of the Recommended Plan" section of the LRR.
- Step 5. Minimize threats to life and property and to natural and beneficial floodplain values. Restore and preserve natural and beneficial floodplain values. **Corps Action:** The authorized plan directly addresses the potential threats to life and property.
- Step 6. Reevaluate alternatives. **Corps Action:** Alternatives have been evaluated throughout the entire planning process.
- Step 7. Issue findings and a public explanation. **Corps Action:** This document is being distributed to reviewing agencies and interested parties. The LRR, which will include the final EA, will be distributed to the public.
- Step 8. Implement the action.

<b>Appendix B - Illinois Threatened and Endangered Species</b>		
Species Name	Scientific Name	Category
<i>Pseudacris streckeri</i>	Illinois Chorus Frog	Vertebrate Animal
<i>Boltonia decurrens</i>	Decurrent False Aster	Vascular Plant
Rookery	Rookery	Animal Assemblage
<i>Falco peregrinus</i>	Peregrine Falcon	Vertebrate Animal
<i>Spiranthes vernalis</i>	Spring Ladies' Tresses	Vascular Plant
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron	Vertebrate Animal
<i>Egretta caerulea</i>	Little Blue Heron	Vertebrate Animal
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Vertebrate Animal
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Vertebrate Animal
<i>Ammocrypta clarum</i>	Western Sand Darter	Vertebrate Animal
<i>Gallinula chloropus</i>	Common Moorhen	Vertebrate Animal
<i>Silene regia</i>	Royal Catchfly	Vascular Plant
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	Vertebrate Animal
<i>Egretta thula</i>	Snowy Egret	Vertebrate Animal
<i>Tradescantia bracteata</i>	Prairie Spiderwort	Vascular Plant
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	Vertebrate Animal
<i>Ixobrychus exilis</i>	Least Bittern	Vertebrate Animal
<i>Ictinia mississippiensis</i>	Mississippi Kite	Vertebrate Animal